

# Carnegie RESULTS



## **Brandeis Science Posse**

### **Talented students bring diversity to the field**

The Science Posse program at Brandeis University aims to increase the recruitment and retention of students from disadvantaged and underrepresented backgrounds in STEM (science, technology, engineering, and mathematics) disciplines. A grant from Carnegie Corporation helped support the development of the program, which has brought 50 students from New York City high schools to Brandeis and is now starting to expand into other institutions. After five productive years, plans are under way to build on the program's initial success and make Science Posse not only a permanent fixture at Brandeis, but a source of inspiration, information, and guidance for other schools starting similar programs.



*Erin Jonasson (mentor); Peter Warren; Melissa Feitosa; Irv Epstein, Henry F. Fischbach Professor of Chemistry; Aissatou Ka; Nagma Shah; and Katie Cousins (mentor).*

Brandeis University in Waltham, Massachusetts, is known as a world-class research institution with the feel of a liberal arts college. Although it's less than 10 miles west of Boston, the campus can feel like a haven—especially compared to the congested neighborhoods of Manhattan, Brooklyn, or Queens. It's a dramatic change of scene for the Science Posse, a group of 40 students from New York City boroughs who have been selected for the opportunity of a lifetime: four free years at this top institution, a potential launchpad for a fulfilling career in science.

Science Posse is a special initiative of Brandeis University and the Posse Foundation, a college access and youth leadership development program established by Brandeis alum Deborah Bial in 1989. Posse identifies public high school students with extraordinary academic and leadership potential who may be overlooked by traditional

college selection processes. These students are offered the opportunity to pursue personal and academic excellence as part of supportive, multicultural teams—posses—of 10 students. Partner colleges and universities award Posse Scholars four-year, full-tuition scholarships.

The concept of a posse is rooted in the belief that a close-knit group of talented students, carefully selected and trained, can be a catalyst for greater individual and community development. The idea was inspired by one student who gave up on college saying to Bial (at the time his high school teacher), "I never would have dropped out if I had my posse with me." Her initial concept of sending a group of students to college together to be a support system for one another has grown into one of the most powerful college-access programs in the United States today.

Brandeis University is the first college in the nation to

have a Science Posse. The program was founded by Irving R. Epstein, the university's former provost and Henry F. Fischbach Professor of Chemistry, with major grants from the Howard Hughes Medical Institute (HHMI) as well as support from Carnegie Corporation and other donors. Epstein had become very concerned about the lack of diversity in science not only at Brandeis, but in the field in general, and across the country. "It is not an exaggeration to say that the underrepresentation of African-Americans, Hispanics, and Native Americans in the scientific workforce is becoming a national crisis," he wrote in a commentary in the June 2007 issue of *Nature Chemical Biology*. According to Epstein, solutions to many of our most important problems—energy, environment, health, and water, for example—require scientific expertise and creativity, and it therefore makes no sense for a substantial segment of the country's population to be excluded from the scientific field. "A diverse pool of scientists is essential not only to provide sufficient numbers of researchers but also to harness a broad range of outlooks and experience in tackling complex problems," Epstein said.

A \$615,600 grant from Carnegie Corporation supported the early development of the program, which is now well established at Brandeis and is expanding to other institutions. "Science Posse fit very well with Carnegie Corporation's

strategy of supporting new program designs that help create pathways from high school to college for low-income, first-generation, and underrepresented minority students in urban areas," says Michele Cahill, vice president, National Program, and program director, Urban Education. "It has also contributed to reaching our goal of transforming science education for all young people, which is critical to their individual futures and to the country's ability to compete in the global economy."



*"Diversity matters because when you're looking for breakthroughs in science or anything else, you want people to come at problems from many different points of view. You don't want everyone thinking the same way!" —Irv Epstein, Henry F. Fischbach Professor of Chemistry*

Promising high school students who are chosen for Science Posse participate in an eight-month pre-college training program that builds teamwork and enhances academic and leadership skills. During the summer before their freshman year, they also attend a two-week, on-campus "boot camp" that exposes them to the rigors of studying science. When classes begin, students are linked with a graduate student mentor who meets with them regularly, individually and in groups. The preparation is intense, the

support is ongoing, and every element is essential to helping these students succeed. Over a period of five years this formula has been rigorously tested and proven effective.

"We just chose the sixth group last December," says Professor Epstein, who first became involved with the Posse Foundation during his term as provost. Epstein had attended Posse retreats and other activities, and saw how successful the program, which was already operating more than 25 college campuses, was in liberal arts at Brandeis. "I knew right away I wanted to bring Posse here to do science, but first I would have to convince the university president." After stepping down as provost in 2004, Epstein got his chance. He was offered the opportunity to be a Howard Hughes Medical Institute professor, along with the possibility of \$1 million in funding. "I discovered you had to have a project," he explains. "I thought about how I've been teaching general chemistry for 30 years and the thing I always noticed was the sea of white faces that gets whiter and whiter as the semester goes on and students move up the ladder of courses." Epstein had an idea he thought could change that scenario.

He talked to Posse students and learned about how the program succeeds through peer support. But for all its success, Posse did not produce scientists. Epstein observed that in a typical Brandeis Posse of ten students, three or four might start out taking general chemistry, but, even in a good year, only one would complete a science major. He saw that, in the case of science, peer pressure was actually pulling people *out*. "The kids in the sciences would be moaning and working twice as hard as other students. So the other kids would tell them, 'major in something else!' But I thought, suppose they were *all* doing science, then the pressure would be inward rather than outward. Once I convinced the administration, we got the million from HHMI for scholarships and recruited the first group. They were wildly successful! The average GPA was 3.4. No one had ever seen anything like it. The university extended its commitment, we got a lot of national attention, and it just took off from there."

## How the Science Posse Works

Four main components make up the Posse program: recruitment and selection; pre-college training; on-campus mentoring and support; and term-time and summer internships. The initial cohort of 10 Posse Science Scholars matriculated in fall 2008 and graduated in May 2012, and at any given time, 40 Science Posse Scholars are on the Brandeis campus. The sixth group, selected in December 2012, is undergoing pre-college training as this report is being written.

Each year, a network of more than 60 New York City high school teachers and leaders of independent science programs recommends 200 high school seniors to try out for Science Posse. This group is whittled down to 10 Scholars using the Posse Foundation selection process, which can spot students with outstanding academic and leadership potential, even if their strengths are not apparent from standardized test scores. First, the candidates work in teams of six to eight students to carry out a series of tasks, such as constructing arguments for or against a public project such as the siting of a dam, or building a LEGO® structure based on information supplied by a team member who has been shown a prototype.

Teams are reshuffled after each exercise and their discussions are monitored by trained observers looking for indications of creative thinking, communications skills, and leadership potential. Approximately half the candidates move on to the next stage in the process, which involves one-on-one interviews and examination of academic credentials (transcripts, recommendation letters, test scores) by Posse staff. In the final stage, a group of six Brandeis faculty, deans, and admissions staff, including project leaders Irving Epstein, Kim Godsoe, and Melissa Kosinski-Collins, spend about three hours conversing with 20 to 25 finalists and observing team and small-group exercises. The final Scholars are chosen jointly by Brandeis and Posse staff.

"The kid who makes it is probably the kid who might not talk so much," Epstein says. "There are not so many extroverts in STEM as in liberal arts. The kid who survives

in science is the least outgoing; it's someone who would sit in the library for hours. A good listener. Able to make connections. The selection process has the power to pick out kids who don't do that well on tests but can succeed in college. It's not possible to say there is an ideal kid, but we want the ones who also exhibit resilience, because we know that all of them will struggle at some point. The ones who can bounce back will do well. Diversity matters because when you're looking for breakthroughs in science or anything else," Epstein adds, "you want people to come at problems from many different points of view. You don't want everyone thinking the same way."

The selection criteria emphasize how well candidates will fit into the dynamics of the group, as much as academic and leadership abilities. The supportive learning community, the "posse," is the heart and soul of the program. As each cohort moves up the ladder, older students serve as leaders and role models for younger Scholars as well as for other members of the student body. The goal is to choose young people for whom the program is likely to make the greatest difference in their career paths and lives, not necessarily those with the strongest credentials.

While there are no racial, ethnic, or socioeconomic criteria, nearly all the Science Posse Scholars have substantial financial need, and over three-fourths are from underrepresented groups (40 percent African-American, 38 percent Latino, 18 percent Asian-American, 4 percent white). Fifty percent of the Scholars are female, and over two-thirds are the first in their family to attend college.

From January through August of their senior year in high school, the 10 chosen students meet once a week with a trainer from the Posse Foundation to work on building team cohesion, academic leadership, and social

*"Posse students learn to see themselves as resilient in a way they might not know when they first get here. They draw a lot of power from that group identity." —Kim Godsoe, Dean of Academic Services*



skills. Activities run the gamut from practice biology labs to writing workshops to exploring time management and learning styles, with the more academic sessions run by Brandeis faculty. Students are given diagnostic tests in mathematics and chemistry that assess their preparedness for college-level work and prepare them for appropriate course selection in the fall.

When the Posse Scholars come to Brandeis for boot camp, they face for the first time the very real challenges encountered by students in STEM fields at a selective

research university. Now in its sixth iteration, boot camp is a powerful introduction to the extreme effort and commitment required to succeed in science, as well as to the university resources available for scholastic and personal support. It's meant to prevent the mismatch between expectations and reality that can be a major factor in students giving up on science. The academic core of the camp consists of lectures, labs, problem sets, and exams in biology, chemistry, and physics—three of the key introductory courses taken by most Brandeis science majors. Students are given strict assignment deadlines and are expected to manage their schedules and complete all material on time—no excuses. Professor Epstein asserts, "The main reason students have been so successful is boot camp. Melissa Kosinski-Collins, the professor who runs it, set it up to give them the flavor of being a science major at an elite institution. She did it to scare the hell out of them, and it worked!"

## A Safe Space to Bond

"Boot camp is pivotal and intense," says Melissa Kosinski-Collins, associate professor of biology. "Professor Epstein asked me to run the camp early on because he knew of my experience with high school age students. My background was running the U.S. Biology Olympiad, which offers a boot camp for the top 20 kids in the United States, training them for the competition." It's also important that Kosinski-Collins doesn't teach freshman classes, she explains. "That makes boot camp a safe space. It means I am essentially a safe space. We continue to have weekly meetings after boot camp, and since I'm not their teacher there aren't repercussions if they confide in me."

Kosinski-Collins describes her goals as threefold: First, she wants to give students a realistic idea of the workload when they come into Brandeis. "Just because these students were very strong in their individual high schools may not mean they were in really intensive classes," she says. "They're probably not ready to make their way or

manage their own time. They don't know what academic rigor is like day after day." One important difference she points out is that in high school students may have a 50-minute bio class, and now they will have a five-hour lab.

Her second goal is group bonding. The dynamic in science creates a competitive atmosphere, she stresses. "Students come together as a posse, but what will happen when one person becomes the straight-A student who breaks the curve? They've never lived together, never taken classes together, and never had to compete. How can you be a posse when you have no experience?" Her approach must be effective, since she reports, "I've only ever had two students out of fifty that needed to be spoken to."

Science literacy is next on her list. "Every student will struggle at some point," she says. "Their friends will ask, 'Why are you doing it, anyway?' The only way to get across to someone else why science is important is to understand and explain it to yourself. Scientific presentations, oral and written, create scientifically literate citizens who can defend why science is important." Kosinski-Collins says her vision of boot camp comprises all three goals equally, and they can't be separated. "Be prepared, manage time, be able to function as a Posse, know how to communicate about science to other people." The importance of quantitative skills is stressed as well. "The ideal Science Posse student today is very different from five years ago," says Kosinski-Collins. "Today we want a student with a solid background in math. We don't want to set up a student for failure. Their track record has to show they have a chance, and math competency does that." To further prepare incoming students, a computer science element was added to boot camp in 2012, and a social policy workshop will be added in 2013 to make students aware of the ways basic research can influence government decisions on various levels.

"The existence of the Science Posse has altered the attitude of faculty who haven't expected the best of these students," Kosinski-Collins adds. One hurdle she and other professors have encountered with Posse Scholars is that these students tend to be uncomfortable going to office



*Jessica Christian, Biology Professor Melissa Kosinski-Collins, and Noraa Ricketts.*

hours and review sessions. To them, “this is an indication that you are not a success; you’re failing,” she explains. “Posse has helped us recognize that we need to help students who have self-doubt.” It’s no surprise that many students do struggle with the workload of boot camp and the intensity of the Posse culture. To ease the adjustment, the activities students participate in during the two weeks of boot camp are designed to help them share their feelings and experiences and become more secure. Students learn strategies to manage time and stress, hear testimonials from senior Science Posse students, and begin to assess what each member of the cohort brings to the group. They also receive academic advising and learn where they can turn with problems—from tutoring to career exploration.

psychological counseling to special programs for first-generation, low-income college students.

One potential drawback Kosinski-Collins sees is, while it’s clear that Science Posse is fantastic, the flip side of bringing in a cohort of students is that it can isolate them. “You want them to rely not only on each other, but others outside their group,” she says. “It’s not OK to be set apart from the rest of the community.” That’s why Posse Scholars aren’t allowed to room together; they must room with others. They’re even encouraged to take lab on different days. One unmistakable sign of the program’s success is how other classmates react to the Posse Scholars. “I often hear students express the wish that they had a chance to do the same thing,” she says. “Because it’s a great idea.”

## Science is Hard Work

As soon as the new Posse Scholars arrive on campus they are introduced to their mentor—a science graduate student or postdoctoral fellow with whom they will get together regularly, one-on-one and in a group, for their first two years at Brandeis. According to the Scholars, these meetings are vital to making it in Science Posse. This fact was emphasized repeatedly during a meeting with current members of the Science Posse to provide background for this publication. A group conversation with students in their sophomore, junior, and senior years provided a deeper understanding of the challenges these young people face, starting with the inevitable discovery that science is hard, and can only be mastered with hard work.

All the Scholars in this group had graduated from a New York City high school at the top of their class, they said, but they were unprepared for the reality of studying science at a demanding university. Even after pre-college workshops and boot camp, college came as a rude awakening. They brought up the fact that one problem they shared was their reluctance to seek extra help, even when they were clearly falling behind. To these students, asking for help or attending review sessions meant “admitting you were struggling,” which made them feel like they were “not good enough.” A senior who was about to graduate in June 2013 told her story of nearly failing organic chemistry—an experience that caused her to question her future at Brandeis and her career aspirations. With guidance from her mentor she made the tough decision to attend summer school, although the cost would not be covered by her scholarship. By improving her study skills and asking for help when needed, she traded her D-minus for an A and has been on top ever since. Several students agreed that having come close to bottoming out strengthened their determination to succeed once the crisis was over—something the mentors had observed a number of times.

Many of the Scholars have been surprised to discover how their ideas about science shift over time. Several began with the idea of becoming biologists, based on their

interest in that subject in high school, but along the way they developed an even greater passion for chemistry. Students who start out planning to go into medicine, which could be attributed to the fact that doctors are often the only professional science role models they have known, may switch to research or public health policy by the time they graduate. One senior had decided that his lifelong dream of being an M.D. “wasn’t enough;” now he planned to work toward an M.D./Ph.D. Other students have picked up additional interests, such as the senior who added a minor in African/Afro-American studies to her chemistry major, and another minoring in women’s and gender studies.

Students also say they are increasingly aware that being part of a smaller group has actually helped push them out into the larger world. Besides being involved with Posse Scholars in the years above and below them, they have taken on leadership roles in campus-wide organizations as well as national groups such as the Society for Advancement of Chicanos and Native Americans in Science (SACNAS). Among their myriad activities, Scholars have been part of campus-based AHORA!, the Latino student organization; the Chinese Culture Connection Club; New York City’s Million Trees Initiative; and Boston’s Start Strong, for prevention of teen dating violence.

One yearly activity that strengthens bonds among Posse Scholars and with other Brandeis students is the annual Posse Plus Retreat, a no-frills weekend getaway held in the spring at a camp about 50 miles from Brandeis. The Scholars choose the theme; this year it was “Socio-Economics: Class, Power, and Privilege.” Each Posse Scholar may invite two or three other members of the (non-Posse) community—students, faculty, or staff—making the retreat arguably the most racially diverse Brandeis event of the year. In addition to the science department, the Afro-American Studies, Romance Studies, Studio Arts, Near Eastern and Judaic Studies, and International Business School were represented. Professional facilitators from the Posse Foundation run the group activities, which are aimed at fostering community and generating dialog about cultural differences, gender and sexuality, or anti-science attitudes—

topics students might find awkward to talk about on campus. The discussions encourage exploration and foster group cohesion, and ideas that have emerged at the retreats have found their way into new initiatives at the university.

Becoming part of the larger science community at Brandeis is also vital to the Posse Scholars' success. Many students arrive at college with the perception that science is socially isolating. To debunk that myth, students participate in research as early as their second semester, and they have opportunities for summer internships, which also help solidify their sense of belonging in the larger science community. These experiences in particular have led to greater retention of students in the sciences, as well as to having some Scholars change their future plans from being premed to considering a career in research (or occasionally *vice versa*). Since most Posse students would otherwise be working at less stimulating jobs, due to financial need, these opportunities offer additional intellectual and social incentives to choose science. Almost all Science Posse Scholars have had at least one research experience, and most have worked in the labs of Brandeis faculty. As a result they now see scientific research groups as diverse, supportive communities working toward common goals.

## **"We're Posse, We're VIP"**

No matter how they may have struggled emotionally or academically, what conflicts they faced from situations on campus or back in New York, or what decisions they had to make that could affect their lives now and into the future, all the students testified to the huge benefits of Posse membership and mentor support. The four mentors include a Ph.D. candidate in molecular/cell biology and a Ph.D. candidate in chemistry plus a grad student and a post-doc in neuroscience. These young people, who have completed their college experience but are close to the Scholars in age, are ideal role models and advisors.

Having regular meetings with a mentor who is in, or has recently completed, graduate school also makes

postgraduate education seem possible, which can be a huge influence for undergrads who are the first in their families to attend college. The group meetings run by their mentors let Scholars see how fellow students feel challenged by coursework and offer a forum for encouraging one another to stick with the sciences. The Posse Foundation has developed a mentors' training program covering academic and nonacademic situations that may arise, and each mentor attends a three-day summer session, then meets regularly throughout the academic year with Posse Foundation representatives and with Brandeis dean of academic services, Kim Godsoe.

Godsoe's role as Posse liaison is absolutely one of her favorite parts of the job, she says. In that role she not only works with the foundation around student issues, but she is also academic advisor to a majority of Posse students. How often advisory meetings take place depends on the students' needs and comfort level with college, which typically change over time, she says. "One student was like a bulldog about getting her GPA up," says Godsoe. "She would report in by email *every day* and I would write back. This was a 19-year-old, so at first I did not have much faith in her keeping it up. But she did it the entire semester. And her grades went up! I believe now that if she starts to fall below her standards, she'll try again.

"A theme that comes out so strongly is that Science Posse normalizes struggling, regardless of the high school they came from," says Godsoe. "When they see peers persevere, it makes them want to persevere." When Posse kids go looking for role models, they find that "their own posse is their role model," she adds. According to Godsoe, a couple of recent studies have come out saying that good students from underrepresented groups who go into the sciences are more likely to persevere in less selective institutions. But she argues that Posse shows if you give students the resources to succeed at a top school, they will.

Godsoe, a part-time doctoral student at the university's Heller School, is conducting a study of her own. Her dissertation, "Retention in STEM: Understanding the Social and Cultural Capital of Posse Science Students and their

Peers," aims to use quantitative and qualitative methods to explore the experiences of college students in science at Brandeis. Her study will include student records data, surveys, and interviews with three cohorts of students. She has begun by interviewing dozens of Posse Scholars and next will interview comparison groups of more resourced students and of Pell Grant students to determine what provides young people with the cultural capital needed to be successful. "What seems to be coming out is that for Posse students, Posse replicates the social and cultural capital of the more resourced students," she explains.

"We're Posse, we're VIP" Godsoe has heard the Scholars say. She says it shows their feeling that they belong here in part because of having connections with people they perceive as being important. When students feel like failures, we help them see reality," she stresses. "We say, yes, you're going to have to work very hard because here, *everyone* is smart. But it's not only about being smart. What's going to keep you in science is that you're going to work. And yes, you may have to work much harder than the person next to you."

She says at first the students' emotions are real and raw, and "you have to acknowledge these powerful feelings."

The drama starts with the selection process. "It's very tough. Every year we wish we could choose an 11<sup>th</sup> or 12<sup>th</sup> Posse member. Everyone is fighting for that one kid they want in." Godsoe says she looks for someone who has already faced a real challenge in life. She's also looking for someone with compassion. "There will be conflict at some point, and if you have ten people just looking out for themselves, what about the other nine? You need someone who recognizes that what's good for all of us is good for me."

Students do change as time goes on, she says. "They learn to see themselves as resilient in a way they might not know when they first get here. They draw a lot of power from that group identity." After so many periods of self questioning, as seniors they feel accomplishment, power, and ownership of their education. And they end up wanting to give back to others. "If they go to work in the pharmaceutical industry, they'll also tutor kids on the side,

for example. They're committed to giving it forward. Posse One, the group that has graduated, was very, very aware of this. They felt a lot of pressure and pride." Godsoe also mentions there's been a big jump at Brandeis in graduation rates for all students of color. Is it because of Posse? It can't be proven, but her opinion is yes, it is.

## Striving and Thriving

The Science Posse program has recruited six cohorts of ten students each from New York City high schools (Posse One through Posse Six), and the evidence is that all are thriving. Posse One graduated in May 2012; a full four-year complement of students is currently on campus; and Posse Six will attend boot camp this summer then matriculate in September. With a retention rate of 100 percent and a mean GPA of 3.07, "their accomplishments, as well as those of all the Scholars, affirm their skills and aspirations as emerging STEM leaders," according to the final grant report. While preparing the Scholars to become researchers, practitioners, and thinkers with a deep knowledge of and passion for science, the report adds, Science Posse is also helping to meet the university's commitment to social justice.

Among the success stories in the first graduating class is the son of a single mother from Ghana who made Dean's List every semester, graduating *magna cum laude* in biology with a 3.74 GPA, and being admitted (after his sophomore year) to Tufts Medical School, where he is pursuing both an M.D. and an M.B.A. A Latino student who predicts he is "just the first of many college graduates that will come from my family," graduated *cum laude* with a double major in biology and neuroscience and is currently doing research in the Department of Earth and Planetary Sciences at Harvard before applying to medical school. In 2010 he was chosen for the Howard Hughes Medical Institute (HHMI) Exceptional Research Opportunities program (one of four Science Posse Scholars to have received this honor), and worked in the laboratory of an HHMI investigator at the

University of California, Berkeley.

Students in the younger cohorts are striving, too. A young woman from Queens double-majoring in Biology and Health Science, Society and Policy not only works in a lab investigating neurodegenerative diseases such as Alzheimer's, she is also a Comprehensive Health Initiative coordinator, promoting student health on campus. Aiming to open her own dental practice in the future, she currently volunteers for the South African Children Oral Relief Education pilot program, which creates children's books illustrating the importance of oral hygiene. The freshman class isn't wasting any time, either. One aspiring physician has already volunteered in two of New York City's top hospitals and plans to minor in women's and gender studies. Another student, who worked in a soup kitchen as a member of New York Cares, plans to major in either biology or neuroscience and minor in international and global studies. Her aim is to travel to developing countries and provide medical care for those with few resources. The list goes on and on.

Brandeis considers the Science Posse experiment a potential model, adaptable to local needs and constraints, for similar programs at other colleges and universities, and eventually for a national network of collaborators. Four other institutions—University of Wisconsin at Madison, Franklin and Marshall College, Texas A&M University, and Bryn Mawr College—have already adopted or are committed to adopting the Science Posse, with Brandeis and the Posse Foundation providing expertise, recruiting networks, and student training. The basic elements of the Brandeis program are in place, and they continue to be refined and augmented in order to make the program more effective and more attractive to potential adopters.

"The main reason Science Posse hasn't spread faster is the expense," says Epstein. "Scholarships are the big cost of the program." At Brandeis, each cohort represents a four-year tuition obligation of \$1.6 million. Posse Scholars are guaranteed at least full tuition and, if need goes beyond that, room and board too, as well as additional academic activities

## Highlights of Brandeis Science Posse achievements and aspirations

### Posse One Scholars, Class of 2012:

- One has finished his first year at Tufts Medical School.
- Two have earned master's degrees and are applying to medical school.
- Two are working and applying to medical school.
- One is a research assistant at Memorial Sloan-Kettering Cancer Center.
- One is working in a lab and looking into a public health career.
- One is completing a year with City Year Boston and will work in public health next year.
- One is teaching in New York City.
- One (December graduate) is pursuing a job in education.

### Posse Two Scholars, Class of 2013:

- One is entering a Ph.D. program in chemistry at Cornell.
- One has applied to Ph.D. programs in physics.
- One is working at a pharmaceutical company.
- One is going to work for Teach for America.
- Four are applying to graduate school and hope to continue to medical school.
- One is pursuing a job in public health.
- One is completing a post-baccalaureate program to prepare for medical school.

and internships, which add up to roughly \$8 million for the 40 students on campus at any one time. While seeking scholarship gifts from various entities that believe in Science Posse, Brandeis has the long-term goal of securing a named endowment gift from a donor to underwrite the program.

"As a result of the Posse program, minority enrollment

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RESULTS SUMMER 2013

*continued from page 11*

in introductory science courses has increased well beyond the number of Posse students," Professor Epstein points out. "Our preliminary surveys show that both minority and majority students experience a learning environment that sets high standards for their success." Since the introduction of the Science Posse the increase in minority graduates is striking, well beyond the seven Science Posse Scholars graduating in STEM majors—due in large measure to the effect on all students of color when significant numbers of their fellow students persist and succeed in courses that previously had few "survivors" with whom they could identify. Things have changed in ways we can see.

*Written by: Karen Theroux. Photos courtesy of: Brandeis University.*

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